

ABSTRACT OF THE DISCLOSURE

A system for removing clean coal from raw coal without the use of water includes a vibratory separator which receives the raw coal and a supply of magnetic particles. The magnetic particles form a fluidized bed which floats the clean coal from the debris contained in the raw coal and removes the clean coal by a scraper plate. A mixture of debris and magnetic particles which remains after the clean coal is removed is passed by a revolving magnetic separator which removes the magnetic particles from the debris and from the clean coal, and returns the particles for reuse with another batch of raw coal. The magnetic separator includes a rotating drum having a non-magnetic outer surface and an interior magnet which forms a magnetic field adjacent a portion of the drum surface which temporarily attracts the magnetic particles which fall from the drum surface as that portion of the drum surface and collected particles pass beyond the adjacent magnet.